

# URBAN POLLUTION: PHYSICAL AND CHEMICAL FACTORS

PROCEEDINGS OF A CISB MINISYMPOSIUM - ROME, MARCH 2010

## FOREWORD

This special number of BBL is devoted to the proceedings of a minisymposium recently held at C.I.S.B. and centered on urban pollution. The aim was to exploit the interdisciplinary mission of the C.I.S.B. Center in order to provide colleagues from different backgrounds an opportunity to exchange ideas and results over a topic drawing a more and more widespread attention. The chosen format for the C.I.S.B. minisymposia consists in a half-day session including 6 - 7 contributions, each of about 30' plus discussion. Such relatively light format should encourage participation of anybody (particularly young people) eager to discuss his own results in front of colleagues sharing the same attitude towards significant data, evidence-based interpretations and realistic models.

Pollution in general and urban pollution in particular is nowadays eliciting both fear and caution in a number of contexts and in the imagery of most people. Everybody feels the potential danger associated to the extremely fast changes in the environment driven by human activities; however, only a minority is able to identify and quantify the many and heterogeneous facets of the associated, large scale phenomena. In such an uncertain landscape, personal attitudes caused by disengagement or unawareness may easily prevail, and any contribution improving a reliable information should be welcome.

The reports collected in these Proceedings represent a significant sample of the two broad categories in which the environment modifiers can be grouped, namely as physical and chemical pollutants. We purposely excluded the electromagnetic waves from the count, since the huge dimension of the issue is actually worth of a fully dedicated (and hopefully forthcoming) symposium.

Giovanna Zimatore's e Anna Maria Siani's contributions illustrate the role as potential pollutants of two relatively well characterized physical agents, namely noise and solar UV radiation. The former contribution shows how elevated noise levels may irreversibly damage the internal ear and how they are distributed and counteracted in some european big cities. The latter contribution points out the difficult estimate of the global effects on human health of the solar UV radiation, whose beneficial role on the bone system is balanced by the noxious one on skin and eyes. The light pollution of the sky in big towns, defined and illustrated by Roberto Nesci, introduces a quite peculiar facet of the human pollution of the environment which, mainly due to poor information, is underestimated in

its biological and practical consequences. The problem of tracing hidden and dangerous chemical pollutants is exemplified by Carmela Protano, Massimiliano Vard and Matteo Vitali through the paradigmatic case of the benzene estimate in biological samples by a sensitive and straightforward procedure. On a very different scale, the intriguing and widespread presence of solid and volatile minute particles in the aerosol of different geographical areas is the interesting topic of Cinzia Perrino's presentation. The last lecture in the minisymposium was held by Maria Fiaschetti, member of a group supervised by prof. Francesco Tomei, from the Occupational Medicine Dept. of Sapienza, Rome University. This group demonstrated, through the altered levels of several metabolites and hormones - that urban pollution can cause effects on cardiovascular and respiratory systems, on liver, on neuro-immune-endocrine system and on several psychological functions. Finally, I cannot miss to thank prof. Luigi Campanella for the precious overview he provided on the crucial issue of improving the estimate of urban pollution by means of automatic stations, and on the related technical and economical problems.

By the publication in BBL of these proceedings we should be able to reach a potential audience orders of magnitude larger than that actually attending the symposium, thus providing - we hope - a not negligible contribution to increase the level of critical awareness in the field.

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